

16. (New) An iron compound catalyst for inhibiting the generation of dioxin, comprising iron oxide particles, iron oxide hydroxide particles or mixture thereof and having a catalytic activity capable of converting at least 15 % of carbon monoxide into carbon dioxide when  $2.8 \times 10^{-4}$  mol of iron oxide particles obtained by heat-treating said iron compound catalyst in air at a temperature of 800°C for 15 minutes, are instantaneously contacted with  $6.1 \times 10^{-7}$  mol of carbon monoxide at a temperature of 250°C at a space velocity (SV) of 42,400 h<sup>-1</sup> in an inert gas atmosphere using a pulse catalytic reactor,

said iron oxide particles or said iron oxide hydroxide particles having an average particle size of 0.01 to 2.0 μm, a BET specific surface area of 0.2 to 200 m<sup>2</sup>/g, a phosphorus content of less than or equal to 0.02 % by weight, a sulfur content of less than or equal to 0.1 % by weight and a sodium content of less than or equal to 0.2 % by weight.

17. (New) An iron compound catalyst for inhibiting generation of dioxin according to claim 16, wherein the average particle size is 0.02 to 1.0 μm; the BET specific surface area is 0.5 to 100 m<sup>2</sup>/g and the phosphorus content is less than or equal to 0.005 % by weight.

18. (New) An iron compound catalyst for inhibiting generation of dioxin according to claim 16, wherein the catalytic activity capable of converting of carbon monoxide into carbon dioxide is at least 20 % when  $2.8 \times 10^{-4}$  mol of iron oxide particles obtained by heat-treating the iron compound catalyst in air at a temperature of 800°C for 15 minutes, are instantaneously contacted with  $6.1 \times 10^{-7}$  mol of carbon monoxide at a temperature of 250°C at a space velocity (SV) of 42,400 h<sup>-1</sup> in an inert gas atmosphere using a pulse catalytic reactor.

19. (New) An iron compound catalyst for inhibiting generation of dioxin according to claim 16, wherein said iron compound catalyst comprises aggregates comprising said iron oxide particles, said iron oxide hydroxide particles or mixture thereof, said aggregates having a specific surface area of not less than 1.0 m<sup>2</sup>/cm<sup>3</sup> when measured under a feed pressure of 1 bar in a dry granulometer, and an average particle size (D50) of 50 % of a total volume thereof, of up to 8.0 μm.

20. (New) An iron compound catalyst for inhibiting generation of dioxin according to claim 19, wherein the specific surface area of said aggregates is at least 1.2 m<sup>2</sup>/cm<sup>3</sup> when measured under a feed pressure of 1 bar in a dry granulometer, and the average particle size (D50) is up to 7.0 μm.

21. (New) An iron compound catalyst for inhibiting generation of dioxin according to claim 19, wherein said aggregates comprise said iron oxide particles, said iron oxide hydroxide particles or mixture of said iron oxide particles and said iron oxide hydroxide particles having an average particle size of 0.02 to 1.0  $\mu\text{m}$ , a BET specific surface area of 0.5 to 100  $\text{m}^2/\text{g}$ , a phosphorus content of less than or equal to 0.005 % by weight, a sulfur content of less than or equal to 0.1 % by weight and a sodium content of less than or equal to 0.2 % by weight.

22. (New) An incineration process of a municipal solid waste, comprising:  
spray-introducing said iron compound catalyst as defined in claim 16 in an amount of 0.01 to 5.0 % by weight per hour based on the weight of a dry municipal solid waste, into a combustion chamber of an intermittently operated incinerator by a gas carrying method to contact said iron compound catalyst with a combustion gas.

23. (New) An incineration process according to claim 22, wherein said gas is an air or a nitrogen, and the amount of said gas is 1 to 20 % by volume based on the total volume of combustion gas fed into said combustion chamber.

24. (New) An incineration process according to claim 22, wherein said iron compound catalyst comprises the aggregates of said iron oxide particles, said iron oxide hydroxide particles or mixture thereof,

said aggregates having a specific surface area of not less than  $1.0 \text{ m}^2/\text{cm}^3$  when measured under a feed pressure of 1 bar in a dry granulometer, and an average particle size (D50) of 50 % of a total volume thereof, of up to  $8.0 \mu\text{m}$ .

25. (New) An incineration process according to claim 22, wherein the amount of said iron compound catalyst spray-added is 0.1 to 1.0 % by weight per hour based on the weight of the dry municipal solid waste.

26. (New) An incineration process of municipal solid waste, comprising:  
spray-adding said iron compound catalyst as defined in claim 16 into the combustion chamber of the intermittently operated incinerator by a gas carrying method while supplying a secondary gas toward a tip end of combustion flame in the combustion chamber of the intermittently operated incinerator to uniformly disperse said iron compound catalyst in the combustion chamber, thereby contacting said iron compound catalyst with a combustion gas.

27. (New) An incineration process according to claim 26, wherein said secondary gas is air, a nitrogen gas or a combustion exhaust gas.

28. (New) An incineration process according to claim 26, wherein the amount of said secondary gas is 1 to 40 % by volume based on the total volume of the combustion air fed into said combustion chamber.

29. (New) An iron compound catalyst for inhibiting generation of dioxin, comprising aggregates comprising iron oxide particles, iron oxide hydroxide particles or mixture thereof and having a specific surface area of not less than  $1.0 \text{ m}^2/\text{cm}^3$  when measured under a feed pressure of 1 bar in a dry granulometer, and an average particle size ( $D_{50}$ ) of 50 % of a total volume thereof, of up to  $8.0 \mu\text{m}$ , and

having a catalytic activity capable of converting at least 15 % of carbon monoxide into carbon dioxide when  $2.8 \times 10^{-4}$  mol of iron oxide particles obtained by heat-treating said iron compound catalyst in air at a temperature of  $800^\circ\text{C}$  for 15 minutes, are instantaneously contacted with  $6.1 \times 10^{-7}$  mol of carbon monoxide at a temperature of  $250^\circ\text{C}$  at a space velocity (SV) of  $42,400 \text{ h}^{-1}$  in an inert gas atmosphere using a pulse catalytic reactor.

said iron oxide particles or said iron oxide hydroxide particles having an average particle size of  $0.01$  to  $2.0 \mu\text{m}$ , a BET specific surface area of  $0.2$  to  $200 \text{ m}^2/\text{g}$ , a phosphorus content of less than or equal to  $0.02 \%$  by weight, a sulfur content of less than or equal to  $0.1 \%$  by weight and a sodium content of less than or equal to  $0.2 \%$  by weight.

30. (New) An incineration process of a municipal solid waste, comprising:  
spray-introducing said iron compound catalyst as defined in claim 16 or 19 in an amount of  $0.01$  to  $5.0 \%$  by weight per hour based on the weight of a dry municipal solid

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waste, into a combustion chamber of an intermittently operated incinerator by a gas carrying method wherein a gas is an air or a nitrogen, and the amount of said gas is 1 to 20 % by volume based on the total volume of combustion gas fed into said combustion chamber, to contact said iron compound catalyst with a combustion gas.

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31. (New) An incineration process of municipal solid waste, comprising:  
spray-adding said iron compound catalyst as defined in claim 16 or 19 into the combustion chamber of the intermittently operated incinerator by a gas carrying method wherein a gas is an air or a nitrogen, and the amount of said gas is 1 to 20 % by volume based on the total volume of combustion gas fed into said combustion chamber, while supplying a secondary gas of air, a nitrogen gas or a combustion exhaust gas toward a tip end of combustion flame in the combustion chamber of the intermittently operated incinerator to uniformly disperse said iron compound catalyst in the combustion chamber, thereby contacting said iron compound catalyst with a combustion gas,  
the amount of said secondary gas being 1 to 40 % by volume based on the total volume of the combustion air fed into said combustion chamber.

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